INDEX

Abboud, M. *See* Lugt & Abboud

Antonia, R. A. *See* Browne, Antonia & Shah

Bogard, D. G. & Tiederman, W. G. Characteristics of ejections in turbulent channel flow, 1–19

Boyd, W. G. C. *See* Hooper & Boyd

Bridges, T. J. Secondary bifurcation and change of type for three-dimensional standing waves in finite depth, 137–153

Browne, L. W. B., Antonia, R. A. & Shah, D. A. Turbulent energy dissipation in a wake, 307–326

Castro, I. P. & Haque, A. The structure of a turbulent shear layer bounding a separation region, 439–468

Choi, H. S. *See* Mei & Choi

Elliott, J. W. & Smith, F. T. Dynamic stall due to unsteady marginal separation, 489–512

Fernández de la Mora, J. *See* Fernández-Feria & Fernández de la Mora

Fernández-Feria, R. & Fernández de la Mora, J. Shock wave structure in gas mixtures with large mass disparity, 21–40

Gebhart, B. *See* Joshi & Gebhart

Gittler, Ph. & Kluwick, A. Triple-deck solutions for supersonic flows past flared cylinders, 469–487

Grabitz, G. *See* Jungowski & Grabitz

Gutmark, E. *See* Ho & Gutmark

Haque, A. *See* Castro & Haque

Henkes, R. A. W. M. & Veldman, A. E. P. On the breakdown of the steady and unsteady interacting boundary-layer description, 513–529

Ho, C.-M. & Gutmark, E. Vortex induction and mass entrainment in a small-aspect-ratio elliptic jet, 383–405

Hocking, L. M. The damping of capillary–gravity waves at a rigid boundary, 253–266

Hocking, L. M. Waves produced by a vertically oscillating plate, 267–281

Hooper, A. P. & Boyd, W. G. C. Shear-flow instability due to a wall and a viscosity discontinuity at the interface, 201–225

Joshi, Y. & Gebhart, B. Transition of transient vertical natural-convection flows in water, 407–438

Jungowski, W. M. & Grabitz, G. Self-sustained oscillation of a jet impinging upon a Helmholtz resonator, 77–103

Kluwick, A. *See* Gittler & Kluwick

Liu, J. T. C. *See* Nikitopoulos & Liu

Liu, P. L.-F. Resonant reflection of water waves in a long channel with corrugated boundaries, 371–381

Longuet-Higgins, M. S. Lagrangian moments and mass transport in Stokes waves, 547–555

Lugt, H. J. & Abboud, M. Axisymmetric vortex breakdown with and without temperature effects in a container with a rotating lid, 179–200

Mei, C. C. & Choi, H. S. Forces on a slender ship advancing near the critical speed in a wide canal, 59–76

INDEX

Abboud, M. *See* Lugt & Abboud

Antonia, R. A. *See* Browne, Antonia & Shah

Bogard, D. G. & Tiederman, W. G. Characteristics of ejections in turbulent channel flow, 1–19

Boyd, W. G. C. *See* Hooper & Boyd

Bridges, T. J. Secondary bifurcation and change of type for three-dimensional standing waves in finite depth, 137–153

Browne, L. W. B., Antonia, R. A. & Shah, D. A. Turbulent energy dissipation in a wake, 307–326

Castro, I. P. & Haque, A. The structure of a turbulent shear layer bounding a separation region, 439–468

Choi, H. S. *See* Mei & Choi

Elliott, J. W. & Smith, F. T. Dynamic stall due to unsteady marginal separation, 489–512

Fernández de la Mora, J. *See* Fernández-Feria & Fernández de la Mora

Fernández-Feria, R. & Fernández de la Mora, J. Shock wave structure in gas mixtures with large mass disparity, 21–40

Gebhart, B. *See* Joshi & Gebhart

Gittler, Ph. & Kluwick, A. Triple-deck solutions for supersonic flows past flared cylinders, 469–487

Grabitz, G. *See* Jungowski & Grabitz

Gutmark, E. *See* Ho & Gutmark

Haque, A. *See* Castro & Haque

Henkes, R. A. W. M. & Veldman, A. E. P. On the breakdown of the steady and unsteady interacting boundary-layer description, 513–529

Ho, C.-M. & Gutmark, E. Vortex induction and mass entrainment in a small-aspect-ratio elliptic jet, 383–405

Hocking, L. M. The damping of capillary–gravity waves at a rigid boundary, 253–266

Hocking, L. M. Waves produced by a vertically oscillating plate, 267–281

Hooper, A. P. & Boyd, W. G. C. Shear-flow instability due to a wall and a viscosity discontinuity at the interface, 201–225

Joshi, Y. & Gebhart, B. Transition of transient vertical natural-convection flows in water, 407–438

Jungowski, W. M. & Grabitz, G. Self-sustained oscillation of a jet impinging upon a Helmholtz resonator, 77–103

Kluwick, A. *See* Gittler & Kluwick

Liu, J. T. C. *See* Nikitopoulos & Liu

Liu, P. L.-F. Resonant reflection of water waves in a long channel with corrugated boundaries, 371–381

Longuet-Higgins, M. S. Lagrangian moments and mass transport in Stokes waves, 547–555

Lugt, H. J. & Abboud, M. Axisymmetric vortex breakdown with and without temperature effects in a container with a rotating lid, 179–200

Mei, C. C. & Choi, H. S. Forces on a slender ship advancing near the critical speed in a wide canal, 59–76

Meyer, J. & Weihs, D. Capillary instability of an annular liquid jet, 531–545

Nikitopoulos, D. E. & Liu, J. T. C. Nonlinear binary-mode interactions in a developing mixing layer, 345–370

Õguz, H. N. & Sadhal, S. S. Growth and collapse of translating compound multiphase drops: analysis of fluid mechanics and heat transfer, 105–136

Page, M. A. Separation and free-streamline flows in a rotating fluid at low Rossby number, 155–177

Parkinson, G. V. & Yeung, W. A wake source model for airfoils with separated flow, 41–57

Pennell, S. A. On a series expansion for the solitary wave, 557–561

Rao, P. R. *See* Zahalak, Rao & Sutera

Sadhal, S. S. *See* Õguz & Sadhal

Shah, D. A. *See* Browne, Antonia & Shah

Sinai, Y. L. A model of interfacial stress and spray generation by gas flowing over a deep, wavy pool, 327–344

Smith, F. T. & Stewart, P. A. The resonant-triad nonlinear interaction in boundary-layer transition, 227–252

Smith, F. T. *See* Elliott & Smith

Stewart, P. A. *See* Smith & Stewart

Sutera, S. P. *See* Zahalak, Rao & Sutera

Tiederman, W. G. *See* Bogard & Tiederman

Veldman, A. E. P. *See* Henkes & Veldman

Weihs, D. *See* Meyer & Weihs

Yeung, W. *See* Parkinson & Yeung

Zahalak, G. I., Rao, P. R. & Sutera, S. P. Large deformations of a cylindrical liquid-filled membrane by a viscous shear flow, 283–305.

Volume 179 June 1987

CONTENTS

Characteristics of ejections in turbulent channel flow. D. G. Bogard and W. G. Tiederman *page* 1

Shock wave structure in gas mixtures with large mass disparity. R. Fernández-Feria and J. Fernández de la Mora 21

A wake source model for airfoils with separated flow. G. V. Parkinson and W. Yeung 41

Forces on a slender ship advancing near the critical speed in a wide canal. Chiang C. Mei and Hang S. Choi 59

Self-sustained oscillation of a jet impinging upon a Helmholtz resonator. W. M. Jungowski and G. Grabitz 77

Growth and collapse of translating compound multiphase drops: analysis of fluid mechanics and heat transfer. H. N. Öguz and S. S. Sadhal 105

Secondary bifurcation and change of type for three-dimensional standing waves in finite depth. Thomas J. Bridges 137

Separation and free-streamline flows in a rotating fluid at low Rossby number. Michael A. Page 155

Axisymmetric vortex breakdown with and without temperature effects in a container with a rotating lid. Hans J. Lugt and Michel Abboud 179

Shear-flow instability due to a wall and a viscosity discontinuity at the interface. A. P. Hooper and W. G. C. Boyd 201

The resonant-triad nonlinear interaction in boundary-layer transition. F. T. Smith and P. A. Stewart 227

The damping of capillary–gravity waves at a rigid boundary. L. M. Hocking 253

Waves produced by a vertically oscillating plate. L. M. Hocking 267

Large deformations of a cylindrical liquid-filled membrane by a viscous shear flow. George I. Zahalak, Peddada R. Rao and Salvatore P. Sutera 283

Turbulent energy dissipation in a wake. L. W. B. Browne, R. A. Antonia and D. A. Shah 307

A model of interfacial stress and spray generation by gas flowing over a deep, wavy pool. Y. L. Sinai 327

Nonlinear binary-mode interactions in a developing mixing layer. D. E. Nikitopoulos and J. T. C. Liu 345

Resonant reflection of water waves in a long channel with corrugated boundaries. Philip L.-F. Liu 371

Vortex induction and mass entrainment in a small-aspect-ratio elliptic jet. Chih-Ming Ho and Ephraim Gutmark 383

Transition of transient vertical natural-convection flows in water. YOGENDRA JOSHI and BENJAMIN GEBHART 407

The structure of a turbulent shear layer bounding a separation region. I. P. CASTRO and A. HAQUE 439

Triple-deck solutions for supersonic flows past flared cylinders. PH. GITTLER and A. KLUWICK 469

Dynamic stall due to unsteady marginal separation. J. W. ELLIOTT and F. T. SMITH 489

On the breakdown of the steady and unsteady interacting boundary-layer description. R. A. W. M. HENKES and A. E. P. VELDMAN 513

Capillary instability of an annular liquid jet. J. MEYER and D. WEIHS 531

Lagrangian moments and mass transport in Stokes waves. MICHAEL LONGUET-HIGGINS 547

On a series expansion for the solitary wave. STEPHEN A. PENNELL 557

REVIEWS

The Science of Aviation – A History, by John Ackroyd 563

Hydrodynamic Stability Theory, by Adelina Georgescu; *Stability of Parallel Gas Flows, by Bhimsen K. Shivamoggi* 566

INDEX TO VOLUME 179 568